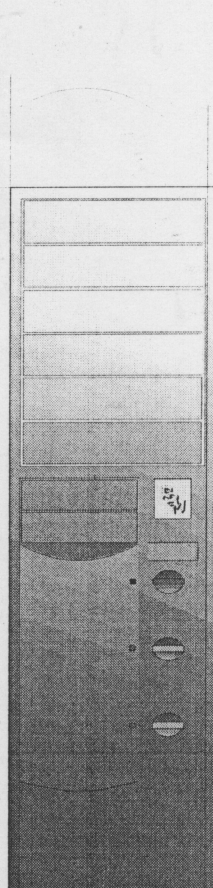# Towerhawk 4000 II ex

for Amiga 4000 Desktop

Version 1.0

RBM
Computertechnik

Introduction

Thank you for purchasing the Towerhawk 4000 II ex. Space and temperature problems are over now! But up to then you still have to do a little work. The transfer of your Amiga 4000 into the Towerhawk ist very easy if you pay attention to some facts:

- Electronic devices are sensitive of becoming charged. Do not wear woollens and don't work in a room where you are always getting electrostatic shocked.
- Electronic devices are sensitive to mechanic strains. Don't use force, if something does not fit at once. There's nothing better than sensitivity!
- Whatever you do, do it with calmness and coolness. A hectic rush is the origin of all mistakes!

You need not be a pro to move your Amiga to its new home! But if you already feel cold sweat when you see a screwdriver we recommend to go to your local dealer and let him do the work...

Electromagnetic compatibility (EMC) / CE

Electromagnetic compatibility is supposed to guarantee the „compatibility" of different electronic devices. This means that your computer must not interfere with your neighbours radio. Transferring your Amiga into a tower case is not clearly defined according to the EMC. For example older ZorroII-Cards do not have the CE-sign so they were never checked for EMC. Anyway does the combination of products with a CE-sign not imply the EMC of the whole product.

We emphasize that rebuilding your Computer into a new case and adding any components, you become the manufacturer/producer of this system under the law of EMC. So you are also responsible for the electromagnetic compatibility of your system!

Before you start to dismount your Amiga you should check with tables 1 and to if you have all parts and tools necessary. Please watch out for screws you take out of your Amiga because you will need some of them later.

Towerhawk 4000 II ex parts list

4	flat head screw M3x12
5	flat head screw M3x25
2	SUB-D mounting screw set
3	hexagonal screw 10mm
3	flat head screw M3x4
14	hexagonal Nut M3
5	spacer 10mm
8	spacer 3mm
1	power adaptor incl. switch
2	9pin mouse-/joystick-extension
6	slot covers
1	special-chassis for internal 32mm disk-drives

Tools

| |
|---|
| Phillips-screwdriver |
| standard screwdriver |
| 5mm nut or a small plunge |

Table 2
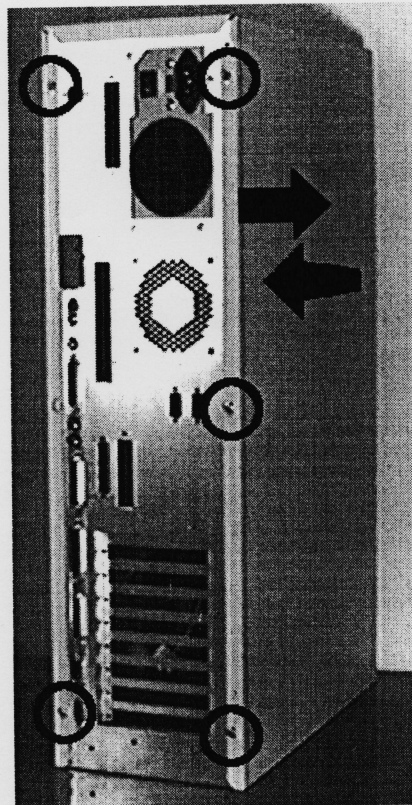
Picture 1 shows the Towerhawk from the back view. The cover is devided into three parts which are tightened with seven screws. To open the sides you have to unlock the screws marked with A in picture 1. Then you slide the side parts backwards and pull them away from the tower at the bottom. We recommend to also take off the upper cover so it does not get any scratches during the procedure.

First you should take out the bay for the 3,5"-Drives which is held in the front by two small screws.

Take five M3x25 screws from the Towerhawk equipment and put them in the direction you look into the holes marked with circels in picture 2. Put a 10mm spacer (or 2x5mm) onto each screw from the other side and tighten them slightly with a nut.
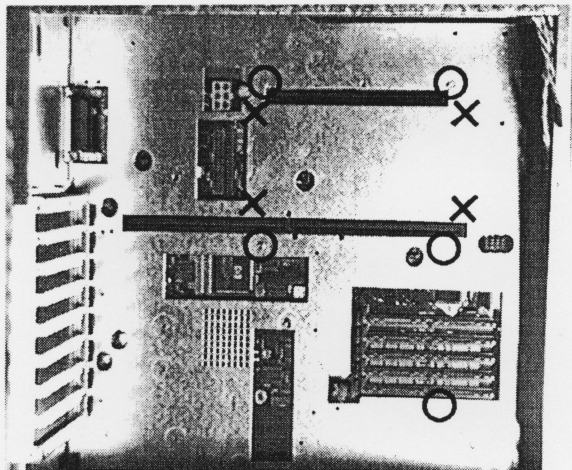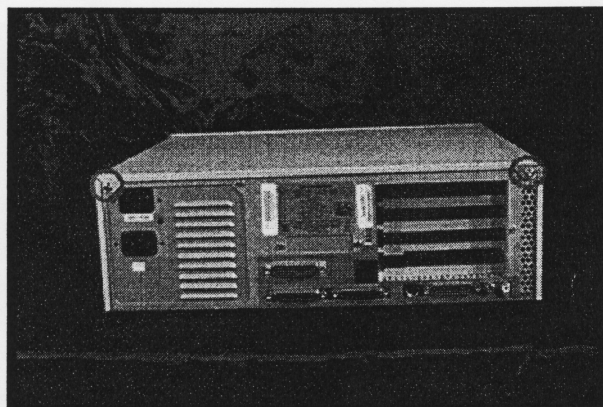

picture 2

Also from the other side towards you, you have to screw four M3x12 screws in at the places marked with a cross in picture 2. Now you should take the power adaptor and mount the switch in the front (upper right corner). Of course you can do that later as well but it might get narrow here so that you have to take off the front which is a lot easier now than later.

You like to know why we didn't mount the switch already? The reason is that the Towerhawk ex fits for the A1200 as well as for the A4000. Since your local dealer decides what kind of tower it is going to be by adding either the A1200 or the A4000 equipment we have to leave out all parts that are only necessary for one of the two!
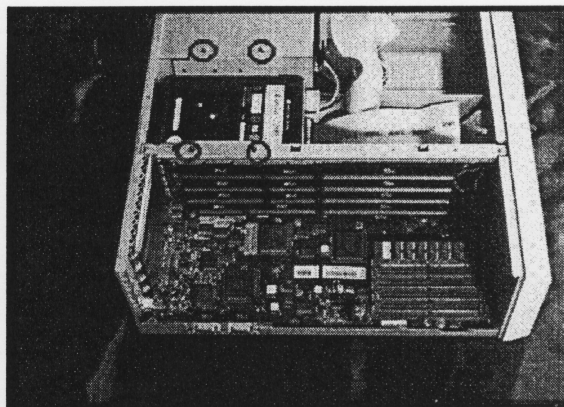
OK, you Towerhawk is now ready for "moving your Amiga in".

Now it is time to dismantle the Amiga 4000. So unplug it and touch your heating to make sure you are not carrying electrostatic charge. If you do it is better to change the room (because of the carpet) or you clothes.

Dismantle!

picture 3

picture 4

Please take into consideration that you might loose all kind of guarantees in the case of dismantling your Amiga. If necessary please refer to your specialist shop.

The Amiga 4000 is held together by two screws on the rear side's top corners. After you have unscrewed the screws you can slightly push the upper part of the casing backwards and lift it (picture 3)
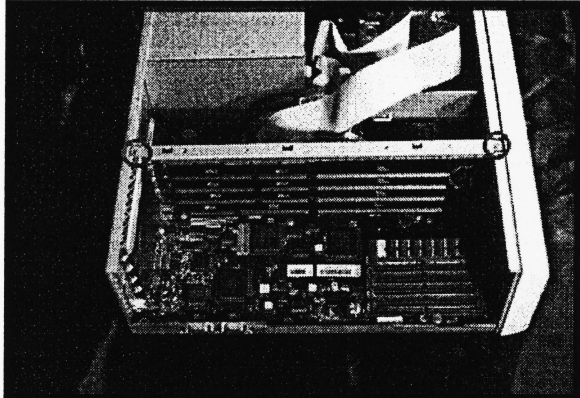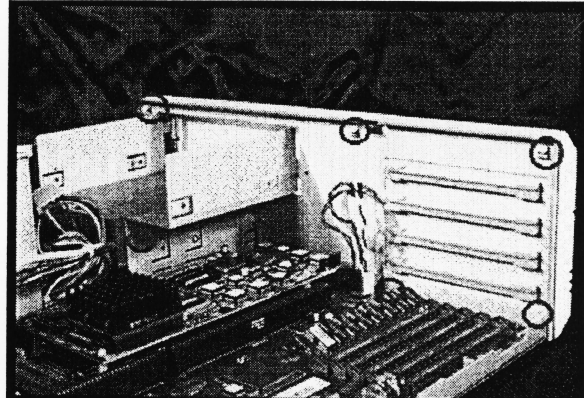

Bild 5

Bild 6

ATTENTION! In contrast to many other desktop-casings the front remains on the computer. In principle you must dismantle the Amiga down to the last detail before you can finally remove the internal drive.

Firstly it is advisable to remove all eventually existing plug-in cards and the daughterboard. In the case of long plug-in cards you must unscrew the slotplate at the rear side of the Amiga and pull the cards carefully out to the left. The daughterboard (with the slots) is fixed by a metal band. In order to remove it you must first take the fixed disk drive out of the A4000 casing by unscrewing the four screws (picture 3) and detaching the two cords of the disk drive. Then remove the two screws of the metal band and lift it with the daughterboard.(picture 5).
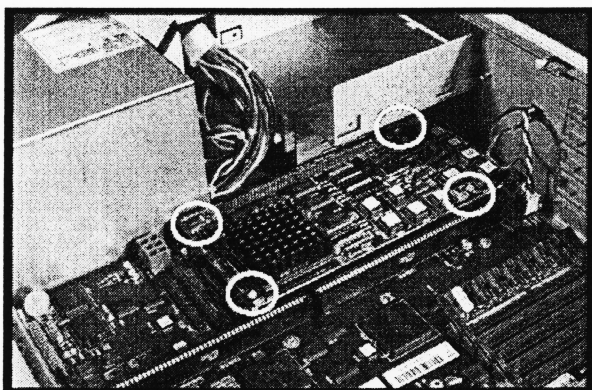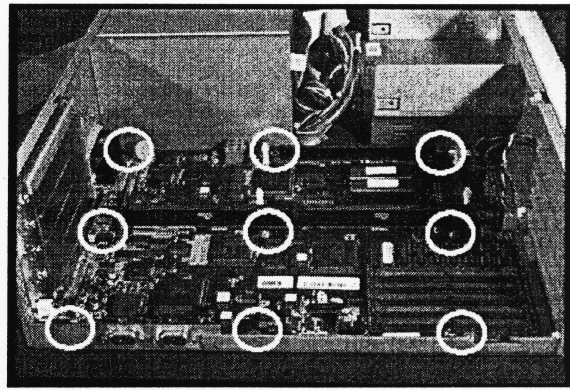

Bild 7

Bild 8

Now remove all remaining cords from the motherboard. Don't forget to pull out the plug of the power supply before you take out the motherboard. The plug will be easy to remove if you press both of the clips locking together. The front panel of the original casing is clamped at exactly seven points. It would be the best to start at the left top and press both plastic clips. At the same moment pull the front panel slightly forward. With that the snap lock will come out. Do the same with the other upper clips. Now you can already let the front panel down. Take a long screw driver and press one after another of the lower clips, so that these also come out and the front panel can be removed forward.

Now, get down to the nitty-gritty! In order to reach the screws of the motherboard you must take out the processor board first. Start left, press the plastic clips with your fingers together (at the corners of the processor board) (picture 7) and lift the board slightly . If all clips are removed the board can be lifted STRAIGHT (!!!!) out.

Put the processor board at a place, which is free from electrostatic charge. (top of the package cover or a marble

window-sill etc.) Then unscrew both of the two hexagonal screws of the serial interface at the rear of the computer (picture 9), and all other hexagonal screws of the interface connectors in the back, next the nine screws which fix the motherboard (picture 8).

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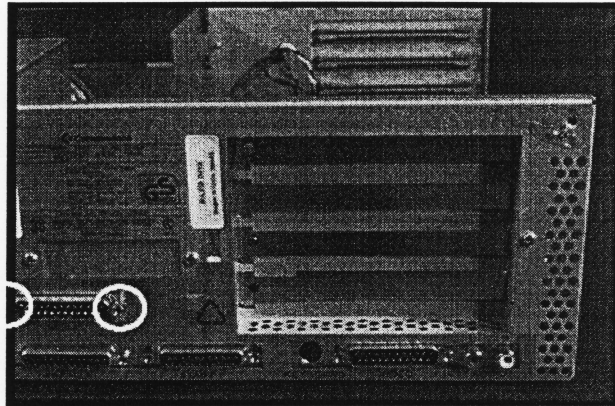
picture 9

Reassemble!

First of all put the motherboard directly to its new place. Therefore you should lay down the Towerhawk onto its left side with the front pointing towards you. Now insert the mainboard upside down from an angle so that the connectors will first find their final position in the rear. Lay down the mainboard carefully. Of course: on every screw you have to put a nut to fix the mainboard. **ATTENTION!!!** In the case of fixing the nuts you must find the happy medium: Too tightly screwed up nuts will damage the motherboard and too loose nuts can become loose by the vibration of the tower in the course of work.

The connector of the serial interface (the upper one of the double decker) has to be fixed in the back of the tower like all other connectors. **ATTENTION !!!** Do not screw in the hexagonal screws of the serial interface connector too hard because the connector does not touch the back from the other side!

In picture 11 you can see the Towerhawk with the mounted mainboard. Ok, you are almost finished. Only the two cables for the Joystick-Ports are still missing. Connect them to the mainboard and put the cable onto the other side of the mainboard holder, passing the slot card holder to the corresponding outlets in the back where you fix them with the two SUB-D mounting screw sets.

Now you can replace the processor board: Put a 3mm spacer onto each screw marked with a cross in picture 2. Make sure the processor board fits the mainboard correctly. **IMPORTANT!!!** Before you fix the processor board with nuts **YOU HAVE TO** put another 3mm spacer onto the screws in order to avoid nuts scratching on the board causing damages!

Now you can replace the 3,5" drive bay.
ATTENTION!!! With some processor boards equipped with RAM it might happen that the SIMMs touch the 3,5" drive bay. Normaly this does not cause any problems. But according to the arrangement of SIMMs on the processor board it might happen that the screws that hold the drives in the bay touch the SIMMs and cause short circuits. If you are in doubt you can recycle the plastic isolation from your Amiga 4000 casing to isolate the 3,5" drive bay from the SIMMs on the processor board. If you install a PowerPC processor board which also contains electronic part at the bottom of the board we also recommend to put some isolation underneath! Also make sure that the screws holding the processor board do not touch any SIMMs that are mounted at an angled position!
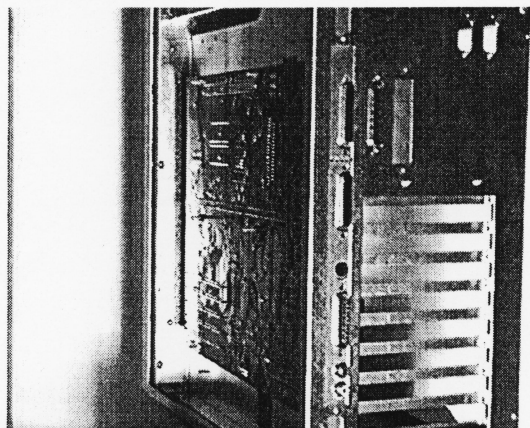
The ONBoard 4000

In contrast to the original daughterboard the ONBoard is laying parallel to the mainboard!
Mounting the ONBoard in the Towerhawk is very simple: Just take the three 10mm hexagonal screws and screw them into the mainboard holder like shown in picture 11. Fit in the ONBoard by pressing the two 100pin edge

connectors at left and right side and in the middle! ATTENTION! You might have to put some strength to it but do not apply to much power, the mainboard could be damaged!

ATTENTION: When inserting expansion cards keep to the same rules! Because of manufacturing tolerances some expansion cards may hardly go into a slot. If you cannot go to another slot take the ONBoard out and put it

picture 10
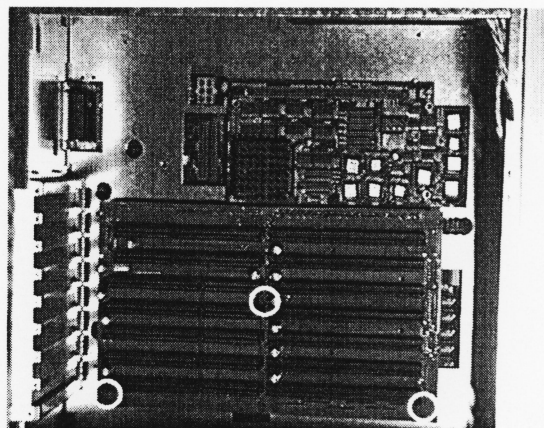
picture 11

onto a table (edge connector over the edge of the table) and insert the card into the slot several times. In some cases it might be reasonable to mount the ONBoard with a card inserted...

Please see chapter ONBoard 4000 at the end of this manual for further information.

The Power connection

One thing missing is the power connection: connect the power adaptor between the power supply and the mainboard.

At last there is the internal disk drive left: older Amiga were supplied with disk drives of 32mm height. Since these drives do not fit into a standard drive bay a special chassis is supplied with the Towerhawk 4000 which is finally mounted into a 5,25" drive bay.

To watch the activity of your Amiga when you switch it on now, we recommend to connect the LEDs in the front of the Towerhawk to the mainboard. So connect the green/whithe cable with the »PWR«-connector on the mainboard that the white cable shows toward the top of the tower (when standing) The same way you act with the red/white (hard drive) and yellow/white (disk drive). Don't worry if you do not find cables in these colours. What we are talking about are the LED cables coming out of the towers front. Also you need not worry about the direction of the connectors: if the LEDs are not illuminated just turn around the connector...

ATTENTION: In some cases the connector of the Power-LED has three pins where the one in the middle is left blank. Just take out one pin by pressing down the hook at the side of the connector and swap it to the middle!

A keyboard switch like in the original Amiga 4000 casing is not existing anymore in modern tower cases.

Now it is done! Lift up the tower and turn it around at all angles that forgotten screws and nuts can fall out. Reconnect the disk drive, the keyboard and the monitor and SWITCH ON! We hope your Amiga starts as usual and request a workbench disk after a little while. If not switch the Amiga off immediately! Check everything for short circuits. Did you turn around the flat ribbon cable of the disk drive by any chance? If in doubt take the cable off and try again but the Amiga will take much longer than to show up with the boot screen.

If everything works fine connect the hard drive also: The red side marks pin 1. Hard drives usually follow the rule that pin 1 points towards the power connector. Don't worry, usually nothing happens when you turn the cable around by mistake.

READY!

Now you can also install all additional devices like CD-ROM, streamer and so on. Perhaps you should take into consideration to install an extra fan since a lot RAM, many hard drives and fast processors produce a lot of heat... At last you close the Towerhawk by acting the other way around as you did in the beginning: First put the top of the cover into place by sliding it smoothly underneath the front panel...

ONBoard 4000

For mounting the ONBoard please referr to the Towerhawk 4000 manual. Never put too much of mechanical strength to the ONBoard, it might get damaged when you bend it too much!!!

The Arrangement of Plug-in-Cards

does not matter in general. The only exception are DMA-Plug-In-Cards (like various SCSI-Host-Adaptors, Vortex Bridgeboards...). They have to(!) be installed in one of the first four slots (counted beginning at teh processor).
Please note that the Buster Rev. 11 chip on the mainboard only supports one ZorroIII bus master. For this reason it is not possible to install for example two Fastlane Z3 together. This is not a fault of the ONBoard but a common handicap of the Amiga 4000.

Zorro compatibility

Up to now we don't know of any combination of Zorro/processor-boards which will refuse to work with the ONBoard. If it happens that your system refuses to work at all check the following issues in this order:

1. Amiga 4000 without ONBoard, if O.K., then
2. Amiga 4000 with ONBoard, if O.K., then
3. add one Plug-In-Card after another to your system until
4. you have found the "stress maker", try then to
5. swap the order of Plug-In-Cards because it might be that two cards affect each other
6. If your are not successful take out the ONBoard and check all combinations with the original daughterboard to make sure that your configuartion works in general. If you don't find a solution at all (in contrast to all our expectations)
7. contact your local dealer or e-mail us to support@rbm.de or even call our hotline:
<div align="right">Mo-Thu. 18-19 Uhr: +49-5251-16191-21</div>

Compatiblity of the Video-Slots

Please note that you cannot run two Genlocks in the Amiga (internal / internal+external). That means that you have to make sure that you install two passive (e.g. flicker fixer) or one active (e.g. genlock) and one passive. If you install an active card we cannot guarantee that another passive card will work properly. This is dependend on the clocking provided by the active card!

For technical assistance please call your local dealer or e-mail to support@rbm.de.

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